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Joint Contractor Logistics Support Doctrine: Ensuring Success on the 21st
Battlefield

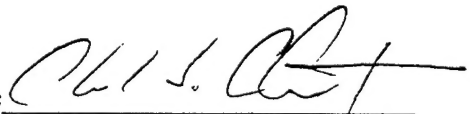
by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of Navy.

Signature



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The fundamental law of logistics is that supplies and services for an armed force can be provided in only three ways:

- *Take them along.*
- *Have them sent.*
- *Obtain them from the countryside.*

All of these methods have been used in warfare. The first method is still used, and because of the progression from human bearers to animals to carts and motor vehicles and airplanes, the troops can take more support with them than ever before. The second method is still used to re-supply the troops and perform essential services, and elaborate systems of support units have been established to send support to the combat units. Despite these improvements, however, the troops cannot carry enough supplies and the military support forces cannot send enough supplies and services to meet all of the demands of modern warfare. It is necessary to obtain some supplies and services from the countryside – from external sources.¹

John Brinkerhoff, "External Support for the Army in the Persian Gulf War"

In today's environment of change, uncertainties, and budget cuts, the services are scrambling to redefine the threat and restructure accordingly. What has evolved is a lighter, smaller, military force heavily reliant on external support to provide Combat Support and Combat Service Support (CS/CSS). The capability to provide sustainment from organic (self-supplied) CSS has been gradually replaced by Contractor Logistics Support (CLS) provided by private companies. Three reasons can be given to explain the increase use of private companies to provide logistics support: deep cuts in uniformed personnel, a push to privatize functions that can be done outside the military, and a growing reliance on contractors to maintain increasingly sophisticated weapons.²

This paper asserts that U.S. military reliance on CLS has risen to the extent that, without it, U.S. forces may be in jeopardy of being unable to accomplish their assigned missions. What was viewed as augmentation to existing organic sustainment capability

¹ John R. Brinkerhoff, "External Support for the Army in the Persian Gulf War", (Unpublished Research Paper, Institute for Defense Analysis, Alexandria, VA: 1997), 1.

² Katherine Peters, "Civilians at War", Government Executive, July 1996, 24.

has, because of its previous successes, supplanted existing force structure. In previous operations DESERT SHIELD and DESERT STORM, CLS worked because it augmented the Services' vast organic resources.

Today, however, CLS is assuming a more primary role. The services are now tethered to the private sector with its associated inherent perils, such as labor strikes, "Eight-to-Five" attitudes, and often-unanticipated plant closures or corporate restructures.

Contractors' presence on the battlefield and their use in existing operations plans has had a two-fold effect on CINCs and Joint Task Force (JTF) commanders. First, because of increased outsourcing of services by the individual service components, the JTF commanders are becoming increasingly reliant on the private sector to sustain their battle. Secondly, because of the increased presence and reliance on contractors, commanders find themselves "sailing in uncharted waters" with regard to proper employment and planning considerations necessary for defining success. To counter this threat, clear guidance and doctrine must be developed to define the parameters and the environment in which contractors can and must be employed in the Joint arena. To date, Joint Doctrine has fallen short of this mark and is largely non-existent. As noted in a recent study, "Joint doctrine for contracting has not been fully developed and, unfortunately, is being conducted in an ad hoc fashion."³

Doctrine must standardize and integrate a multi-service approach to contractor logistics. Combatant Commanders must be able to integrate all respective service logistics functions into a cohesive seamless sustainment plan. As a starting point, such doctrine should prescribe the following:

³ David L. Young, "Operational Planning for Contractors on the Battlefield," (Unpublished Research Paper, U.S. Naval War College, Newport, R.I.: 1998), 10.

- Contractors should augment existing force structure, not replace it.
- Contracts must address certain terms and conditions which are common to all services.
- Establishment of a Joint CLS board chartered to manage, deconflict, and integrate contractor and Commanders in Chief (CINCs) requirements.

Joint Vision 2010 and the Navy and Marine Corps' *Operational Maneuver From the Sea* (OMFTS) depend heavily on flexible, responsive logistical sustainment. The argument can be made that the limiting factor is not the ability to project lighter, more capable forces further and more rapidly than ever before, but that the "long pole in the tent" is our ability to sustain these forces across vast distances in a timely, more responsive manner. To sustain these concepts will require a multi-resources approach by the services. This will involve the use of an integrated logistics system, which draws from the military as well as the civilian sectors to support these concepts logistically.

Historical Perspective

Contractor support on the battlefield is not a new concept for American commanders. As early as the American Revolution, commander reliance on paying for services and supplies to sustain forces on the battlefield was common practice. General Washington, for one, demanded that all services and supplies provided by the locals to his army were to be paid for and not plundered or stolen⁴. The relationship between the civilian sector and the military has evolved and grown significantly ever since.

During World War II and the Vietnam War, one civilian supported every six soldiers. The ratio changed to 1 to 50 for the Persian Gulf, then rose to 1 to 10 in

⁴ Samuel E. Morison, The Oxford History of the American People, New York: Oxford University Press, 1994, 257.

Bosnia⁵. While these numbers appear to reflect a reduced civilian presence on the battlefield, using them to compute the overall risk of danger to civilians in a theater would be misleading. Because of the increased range of our adversaries' weapons and the disappearance of the linear battlefield, civilians working in the theater are "on the battlefield" more than ever before.⁶

A modern day example of contractors on the battlefield was Operation DESERT SHIELD and DESERT STORM. Even though the use of contractors was not pre-planned, their role in providing sustainment, life services, and technical support was unprecedented and significantly shifted the balance of power in favor of the U.S./coalition forces. "With few exceptions, however, it appears that few explicit preparations were made for acquiring and using external support (including Host Nation Support) to support U.S. military forces and operations in Southwest Asia."⁷

Not since Vietnam had the nation deployed such a large contingent of forces to engage an adversary in combat. Over 9,100 civilian contractors were deployed in support of Operation DESERT STORM⁸ to provide maintenance, technical assistance, and equipment support to U.S. and coalition forces. In many instances, because of the type and criticality of support provided by contractors, service members for the first time witnessed civilians deployed to front-line areas to provide vital CS/CSS to ground units. "The Civilian presence in the Gulf Region meant more than moral support and filling in for soldiers. Gulf War veterans say that combat soldiers could owe their lives to the

⁵ Peters, 24.

⁶ James E. Althouse, "Contractors on the Battlefield: What Doctrine Says, and Doesn't Say, Army Logistician, Nov-Dec 1998, 14.

⁷ Brinkerhoff, 8.

⁸ GAO, DoD Force Mix Issues, Report to Congress, (Washington: 1994), 5

Department of the Army civilians who helped maintain equipment. Their support tells it all; they've been with their military colleagues every step of the way".⁹

Experts have noted that had contractors not been able to augment and in some cases actually be the sole provider of supplies and services, the outcome of the war would not have favored the U.S., allied, and coalition forces. To highlight the reliance on contractor support during the war, one need only consider the transportation service provided by civilian and host nation support. Without this support, the mountainous levels of supplies and equipment requiring transportation to front-line units in order to sustain their readiness would not have been possible. Over 500 ships were discharged, 10,000 aircraft received, 12,000 tracked vehicles transported, and 117,000 wheeled vehicles, 1,800 helicopters, and 33,000 containers received and processed. About 374,000 personnel and 1.8 million tons of cargo, including 350,000 tons of ammunition, were received, processed, and moved onward.¹⁰ To move the majority of the heavy assets and supplies required special heavy-duty trucks designed specifically to carry up to and including an M1A1 Tank. Table 1 summarizes the different sources that provided this capability -- note the heavy contribution from commercial sources. These vehicles were provided through contracted companies. Transportation was one of many functions in which contractors augmented military force structure.

⁹ Larry L. Tolar, "Civilians on the Battlefield," *Army Logistician*, November-December 1994, 3.

¹⁰ Brinkerhoff, 41

Table 1: Transportation Asset Sources

U.S. Military	497
U.S. Commercial	48
U.S. Trucking Industry	33
Commercial	333
Egypt	100
Italy	60
Germany	181
Czechoslovakia	40
 TOTAL	 1,301

(Source: DOD, Conduct of the Persian Gulf War: Final Report to Congress, April 1992, Appendix F Table F-4.)

Contractor Types/Service Perspectives

Generally speaking, there are three categories of contractors. These are contractors that provide contingency contractors, life services, and Weapons Systems Support Contractors.

Contingency Contractors: Operations in Bosnia, Haiti, Somalia, and elsewhere clearly demonstrated the requirement for logistical infrastructure in places where none previously existed. Regardless of the scope of the mission, contingency contracting provides for services and other goods to be contracted from the local economy. This type of contracting allows the force commander to fill any unplanned or unforeseen requirements.

Life Support: Life Services are pre-planned logistics services provided by corporate resources as an alternative in support of contingency operations and to augment CS and CSS force structure when identified shortfalls exist.¹¹ Generally, they consist of day-to-day base camp type functions. An example of this type of contractor is the Brown and Root Company. In Bosnia, Brown and Root was called upon to perform the

¹¹ U.S. Army, Contracting Support on the Battlefield, FM100-10-2, (Washington: 1999), A-1.

normal, day-to-day activities of feeding, sheltering, and clothing the troops and performing unprogrammed work such as upgrade of tents. One of the success stories of Operations JOINT ENDEAVOR and JOINT GUARD in Bosnia-Herzegovina has been the evolution of contractor logistics support through the Logistics Civil Augmentation Program (LOGCAP). From its beginning in the early months of Joint Endeavor, through the transition to a new contract 18 months later, to the support it provides today, the contractor has been an indispensable part of the mission.¹²

Weapons Systems Contractor: These contractors are provided as part of a weapons acquisition program. They usually accompany the weapon system and provide on the spot technical assistance to the Services.

DoD has instructed that "components shall rely on the most effective mix of the total force, cost and other factors considered, including active, reserve, civilian, host nation, and contract resources necessary to fulfill assigned peacetime and wartime mission."¹³ All five of the services have to some degree or another civilianized many of their sustainment functions. Relying heavily on commercial or government contracts to deliver the same level of support, the services have individually turned to the private sector to augment or compliment the loss of force structure. Invariably, DoD views the private sector as the fountainhead of future defense budget savings that will help the services accomplish their goal of providing logistics sustainment at affordable costs. This becomes evident if one looks at the services today and how they have individually approached this issue.

¹² Williamson, Darrel A. "Contracted Logistics in Bosnia", Army Logistician, May-June 1998, 21.

¹³ Department of Defense, "Continuation of Essential Contractor Services During Crisis", DODI 3020.37, (Washington: 1990).

By 2003, the Defense Department will have lost one and a half million active, reserve, and civilian personnel from its 1989 peak. Facing multiple overseas contingencies, the Army is employing hundreds of contractors through the LOGCAP.¹⁴ This program provides for pre-planned use of a civilian contractor during operations to augment the support capabilities of selected services.¹⁵ The Army is now considering institutionalizing contracts and using contractors on the battlefield as support for routine functions of military operations. In fact, two test programs currently are in development – Apache Prime Vendor Support and Paladin Fleet Management. These programs are intended to provide the services with access to the manufactures vast “on the shelf” inventory of spare parts and immediate technical representation. In essence, the contractor would provide civilian technical representatives to accompany these weapons wherever the mission dictates. They would have the ability to reach back to their respective companies for immediate support and provide on the spot repairs. If successful, these contractor support programs may lead to many more and force a change in Army culture.¹⁶ In reference to the support provided to forces in Kosovo by commercial logistics companies such as Brown and Root, Deputy Undersecretary of Defense for Acquisition, Stan Soloway was quoted as saying, “We’ve concluded this is something that works and we will see this approach taken in the future.”

The Air Force has a similar program called the Air Force Contract Augmentation Program (AFCAP). This type of contractor provides for supply operations, field services,

¹⁴ Sandra A. Meadows, “Military cuts spur need for contractor in support arena”, National Defense, Nov 1997, 6.

¹⁵ FM 100-10-2, 1-4.

¹⁶ Eric A. Orsini and Lieutenant Colonel Gary T. Bublitz. “Contractor on the Battlefield: Risks on the Road Ahead,” Army Logistician, Jan-Feb 1999, 10.

clothing exchange, laundry, food services, mortuary affairs, hazardous materials disposal, MWR, transportation, maintenance, engineering, and many other life support services worldwide. The major difference between the Army and Air Force programs is that the Air Force will deploy military personnel to support the operation with the intention of turning over sustainment operations to the AFCAP after ninety days. The Air Force views the contractor as augmenting the service capability. The Air Force then re-deploys its support personnel. The Army, on the other hand, increasingly is viewing the contractor as the sole source of sustainment.

The Navy has instituted its own version of contracted logistics, tailored to fulfill the Navy's unique requirements. The Navy's Emergency Construction Capabilities Program Contract (CONCAP), which provides for infrastructure building, water treatment plants, dredging, airfield construction, pier construction, and petroleum storage facilities, is responsible for the establishment of infrastructure where none previously existed.

On the other end of the spectrum, the Marine Corps, which has held a more deliberate, reluctant outlook towards contractor logistics support on the battlefield, has maintained that because of its expeditionary mission, outsourcing its sustainment capabilities would be counterproductive and not as flexible or responsive to meet its mission requirements. If civilian contractors are used, i.e. technical representatives, their locations and assignments will remain limited to Aerial Ports of Debarkation (APOD) and SeaPorts of Debarkation (SPOD). These ports are generally considered rear areas and less likely to see combat. According to Marine Corps Order 4200, if approved, the

Marine Corps would retain the ability to make logistics support decisions independent of the other services.

However viewed by the individual services, contractor logistics support on the battlefield is a method of sustainment which is here to stay. The Marine Corps will undoubtedly have to move quickly towards integrating contractors into their planning processes in order to benefit from the sustainment offered.

Principles of Doctrine

Logistics support in joint and multinational operations traditionally has been the responsibility of each participating service,¹⁷ yet a joint force commander must be able to integrate the logistics functions of participating services and collaborating nations alike.¹⁸ In an era of ever increasing "jointness," Joint Task Force (JTF) commanders must be able to rely on a seamless integration of logistics to sustain their force. In the future, this will mean integrating contractors into the operational planning teams and the use of contractors throughout the Area of Responsibility (AOR). Associated with the use of contractors on the battlefield are basic employment concepts, which the commander should be aware of and plan for. Joint doctrine should endorse the following principles:

1. Contractors should augment, not replace, force structure/capabilities. In a frenzy to replace our current method of sustainment for a less costly manner, the services must not contract away vital sustainment structure. Doing so would be a dangerous move resulting in a "hollow force," dangerously dependent on contracting and its associated costs and risks. Specifically, the services need to retain the capability to perform

¹⁷ US Navy, Naval Logistics, (Naval Doctrine Publication 4) (Washington, D.C.: January 1995), 53.

¹⁸ *ibid.*

battlefield CS/CSS functions as a bridge before contractors arrive in theater, or in the event that contractors do not deploy or cannot continue to support contracted services.

Recommendation: *The services must not trade “core” structure (core structure = organic CSS capabilities) for contracted capabilities. The services must maintain “core” competencies organic to their individual services required to sustain combat operations without the aid of contractor support. Resident subject matter experts must be developed through the doctrinal methods used in the past. The services must not become reliant on the private sector for the sustainment of their forces. Contractors must augment, not take the place of, organic capabilities.*

2. Contracts must address certain terms and conditions common to all services. Ideally, DoD should operate with a set of basic terms applicable to all branches of the military and which aid in standardizing contracts. In the joint environment, the individual services bring different types of civilian contracts to the sustainment arena. This causes confusion and may lead to unnecessary expenditure of resources. The General Accounting Office (GAO) Report on Bosnia had this to say about our effort at planning for integrated contractor support:

Despite significant efforts to effectively manage LOGCAP, U.S. Army, Europe Officials’ inexperience and lack of understanding of the contract, the contractor’s capabilities, and program management created problems during deployment and resulted in unnecessary cost.¹⁹

Unfamiliarity with contract clauses and the lack of a contractor representative on a planning staff can lead to improper methods of employment and produce costly mistakes. Planning for use of contractor support should mandate a thorough understanding of

¹⁹ General Accounting Office, Contingency Operations: Opportunities to Improve the Logistics Augmentation Program, Report to Congressional Requestors. (Washington, D.C.: January 1997), 14.

services required to sustain the force and the capabilities or limitations of the individual contractor. Not all contractors are alike; not all contracts contain the same requirements/clauses. These underlying terms and conditions include²⁰:

Surge Capabilities - The ability of the contractor to surge to meet unanticipated requirements.

Performance Based Logistics – The degree to which the contractor delivers a product or service. Everything is based on the ability of the contractor to deliver. If this cannot be achieved, then the contractor is not paid.

Address all deployment scenarios - Contracts must be written to address all deployment scenarios. The contractor must address the “how” of how the contractor’s assets and services will flow into the theater. This becomes critical when dealing with limited lift assets and competing with limited debarkation facilities.

Exit Clause – What is the services’ exit clause? At what point can the service decide not to continue the relationship with the contractor and under what conditions is it possible to break the contract?

Warranty - How will you repair this item if it is forward deployed to a hostile area? What guarantee are you willing to offer to ensure delivery of the services/products during combat?

Training – Contractor’s level of maintained proficiency to accomplish the mission and safeguard their employees.

²⁰ Headquarters, Marine Corps (LPO), After Action Report, “Contractor Logistics Support”, (Washington D.C.: Nov 1999).

Recommendations: *Joint doctrine must include a standardized framework which addresses established terms and conditions a contractor must agree to in order to qualify for consideration as a potential partner.*

3. Logistics support in joint and multi-national operations traditionally has been the responsibility of each participating service.²¹ A joint force commander must be able to integrate the logistics functions of participating services and collaborating nations alike.²² Integration of all logistics sustainment must occur at the CINC level. One agency or board, which has the responsibility for oversight of theater contractor logistics must be clearly identified.

Recommendation: *The CINC and his staff must have full visibility of all contractors going into the theater of operations in order to phase capabilities of the different services, as the situation dictates, to support the OPLAN. This can be accomplished by the establishment of a Joint CLS board chartered to manage, deconflict, and integrate contractor and CINCs requirements. As a result, one agency would be responsible for ensuring a seamless integration of logistics capabilities.*

The argument can be made by those who support the view that CLS should replace current force structure that CLS is more cost effective and provides the same sustainment capability as our current organic force structure. This logic is wrong and can be dangerous to sustaining forces during combat operations. If the U.S. military becomes so dependent on civilian companies to provide sustainment that, without this support, the services cannot execute operations, then our ability to respond to world crisis will be placed in danger.

²¹ NDP-4, 53.

²² *ibid.*

There are those who would argue that designating the CINC as the integrator for CLS is a step in the wrong direction. Their argument centers on the view, that placing the responsibility of integrating logistics, a service responsibility, on a single entity reduces the span of control of the individual services. In an era of dwindling resources, increased jointness, and heavy reliance on contractor support, the U.S. military must, in order to be successful and reduce confusion in the joint arena, designate one agency solely responsible to ensure a seamless integration of contractors on the battlefield.

Conclusion

Use of contractors to provide logistics support is an irreversible trend. Unless proper integration of individual service contracts is closely accomplished and monitored in the joint arena, our reliance on CLS and lack of doctrine and clear guidance may risk defeat in future conflicts. Without proper coordination and detailed guidance, the services will continue to contract from a parochial viewpoint and not seek common solutions for all. Commanders will soon realize that unless they properly plan for the use of contractors in their operations plans, they will not be afforded the flexibility and sustainment needed to be successful in battle.

BIBLIOGRAPHY

- Althouse, James E., "Contractors on the Battlefield: What Doctrine Says, and Doesn't Say," Army Logistician, November-December 1998.
- Brinkerhoff, John R., "External Support for the Army in the Persian Gulf" Unpublished Research Paper, U.S. Institute for Defense, Alexandria, VA: 1997.
- Department of Defense. Continuation of Essential DoD Contractor Services During Crisis, DODI 3020.37. Washington: 1990.
- Foster, Susan C., "Contractors on the Battlefield: Force Multipliers or Detractors?" Unpublished Research Paper, U.S. Army War College, Carlisle Barracks, PA. 1998.
- Karr, Nicholas J., "LOGCAP-Providing Vital Services to Soldiers," Engineer Professional Bulletin, (March 1997)
- Meadows, Sandra A., "Military cuts spur need for contractor in support arena", National Defense (Nov 1997)
- Mickleson, Roger, "Logistics and Technology in Military Combat," Lecture, 20th Annual General Working Meeting, The Military Conflict Institute, December 1996.
- Morgan, Melvin S., "Contractors in the Joint Theater: The Need for a Joint Doctrine", Unpublished Research Paper, U.S. Naval War College, Newport, R.I. 1999.
- Morrison Samuel E., The Oxford History of the American People, New York: Oxford University Press. 1994, 257.
- Orsini, Eric A. and Gary Bublitz. "Risk on the Road Ahead...Contractor on the Battlefield," Army Logistician (Jan-Feb 1999)
- Peters, Katherine, "Civilians at War", Government Executive, July 1996.
- Palmer, Herman T., "More Tooth, Less Tail: Contractors in Bosnia", Army Logistician, (September-October 1999).
- Tolar, Larry L. "Civilian on the Battlefield," Army Logistician, November-December 1994, 3.
- U.S. Army, "Contracting Support on the Battlefield", (FM100-10-2) (Washington, D.C., August 4, 1999)
- U.S. General Accounting Office. Contingency Operations: Opportunities to Improve the Logistics Civil Augmentation Program, Report to Congressional Requesters.

Washington:1997.

U. S. General Accounting Office. DOD Force Mix Issues: Greater Reliance on Civilians in Support Roles Could Provide Significant Benefits. Report to Congressional Requestors. Washington 1994.

U.S. Navy, Naval Logistics (Naval Doctrine Publication 4) (Washington, D.C.: 1995)

Wagner, Eric C., "Contingency Contracting: Combat Multiplier for the Commander," Army Logistician, May-June 1998.

Williamson, Darrel A., "Contracted Logistics in Bosnia," Army Logistician, May- June 1998.

Young, David L., "Operational Planning for Contractors on the Battlefield", Unpublished Research Paper, U. S. Naval War College, Newport, R.I., 1998.